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ABSTRACT

Designed to provide pre- and inservice vocational education administrators with the skills necessary to direct the curriculum development process, this competency-based module contains an introduction and three sequential learning experiences. Each learning experience consists of an overview, required and optional learning activities, a self-check section, and a series of model answers for use with the self-check section. Topics covered in the first learning experience include directing curriculum development, staff involvement, the need for articulation in curriculum development, and steps in the curriculum development process. Critiquing administrator performance in a case study of a curriculum development project is dealt with next. The final learning experience involves directing the curriculum development process in an actual administrative situation. (Related competency-based vocational education administrator modules covering direct program evaluation, improving instruction, program promotion, staff development, and student recruitment and admissions are available separately through ERIC--see note.) (MN)

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Leadership and Training Series No. 588-7

DIRECT CURRICULUM DEVELOPMENT

COMPETENCY-BASED VOCATIONAL EDUCATION ADMINISTRATOR MODULE SERIES

Consortium for the Development of Professional
Materials for Vocational Education

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FOREWORD

The need for competent administrators of vocational education has long been recognized. The rapid expansion of vocational education programs and increased student enrollments have resulted in a need for increasing numbers of vocational administrators at both the secondary and postsecondary levels. Preservice and inservice administrators need to be well prepared for the complex and unique skills required to successfully direct vocational programs.

The effective training of local administrators has been hampered by the limited knowledge of the competencies needed by local administrators and by the limited availability of competency-based materials specifically designed for the preparation of vocational administrators. In response to this pressing need, the Occupational and Adult Education Branch of the U.S. Office of Education, under provisions of part C--Research of the Vocational Education Amendments of 1968, funded the National Center for a scope of work entitled "Development of Competency-Based Instructional Materials for Local Administrators of Vocational Education" during the period 1975-77. That project had two major objectives:

1. To conduct research to identify and nationally verify the competencies considered important to local administrators of vocational education.
2. To develop and field test a series of prototypic competency-based instructional packages and a user's guide. One hundred sixty-six (166) high priority competencies were identified and six prototypic modules and a user's guide were developed, field tested, and revised.

While six modules had been developed, many more were needed to have competency-based materials that would address all the important competencies that had been identified and verified. In September 1978 several states joined with the National Center for Research in Vocational Education to form the Consortium for the Development of Professional Materials for Vocational Education. Those states were Illinois, Ohio, North Carolina, New York, and Pennsylvania. The first five states were joined by Florida and Texas later in the first year. The first objective of the Consortium was to develop and field test additional competency-based administrator modules of which this is one.

Several persons contributed to the successful development and field testing of this module on directing curriculum development. Lois G. Harrington, Program Associate, assumed the major

responsibility for reviewing the literature and for preparing the actual manuscript. Recognition also goes to the two consultants who helped conceptualize the module and prepared draft materials for the manuscript: Don Bright, Professor, Bowling Green State University, Bowling Green, Ohio; and Lawrence Monaco, Dean of Curriculum and Instruction, Dutchess Community College, Poughkeepsie, New York.

Acknowledgement is given to the three official reviewers who provided critiques of the module and suggestions for its improvement: Douglas Adamson, Director, Division of Occupational Education Instruction, State Education Department, Albany, New York; Anthony Mercurio, Assistant to the President, Bristol Community College, Fall River, Massachusetts; and Don Fisher, Assistant Dean of Instruction, Los Angeles Trade-Technical College, Los Angeles, California.

Credit goes to Glen E. Fardig, consultant, and David Greer, Graduate Research Associate, who helped to refine the module for publication after field testing; and to Robert E. Norton, Consortium Program Director, for providing program leadership and content reviews. Thanks go to James B. Hamilton, Senior Research Specialist, for his helpful assistance; and to Ferman B. Moody, Associate Director for Personnel Development, for his administrative assistance.

Appreciation is also extended to Calvin Cotrell, James Haire, George Kosbab, Patricia Lindley, Helen Lipscomb, Aaron J. Miller, Dominic Mohamed, Robert Mullen, James Parker, Dale Post, Wayne Ramp, and Kenneth Swatt for their service as state representatives, state department contacts, and field-test coordinators; and to the other teacher educators and local administrators of vocational education who used the modules and provided valuable feedback and suggestions for their improvement. Last, but certainly not least, thanks and credit is due Deborah Linehan, Consortium Program Secretary, for her patience and expert skill in processing the many words necessary to make this module a quality document.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

INTRODUCTION

The primary goal of vocational education has been, and continues to be, the preparation of individuals for meaningful employment. If vocational education is to achieve this goal, it must ensure that the curriculum offered reflects actual employment needs, both in type of employment and level of employment. To do this requires a plan, and the plan is called a curriculum: a guide to a program of study to be offered by an institution.

The distinction between curriculum development and instructional development is not always a clear one. Curriculum development is often defined as determining what is to be taught, while instructional development is concerned with deciding how it is to be taught. Curriculum is architecture; instruction is engineering. Curriculum is a product describing the scope of experiences to be offered to students; instruction describes the process, i.e., how those experiences will be delivered. The difficulty arises in deciding where curriculum development ends and instructional development begins since the two processes are essentially interrelated and often occur, more or less, simultaneously. For purposes of this module, curriculum development will limit itself to the what, beginning with occupational analysis and ending with a curriculum plan or "course outline" describing what is to be taught, with sequenced statements of the terminal performance objectives to be achieved. The way in which the what of curriculum is translated into the how of instruction is the subject of another module in this series, Guide the Development and Improvement of Instruction.

You will note that the words course outline in the previous paragraph have been placed in quotes. In many vocational programs, instruction is still provided, effectively, within the structure of courses. Increasingly, however, there is a move on the part of vocational educators to offer open-entry/open-exit, individualized, self-paced, competency-based programs. A curriculum plan or course outline does not lock you into a course structure. It simply describes what a student needs to know and be able to do to enter and succeed in a chosen occupation. How that content and ability will be acquired--through a course, a series of courses, or a competency-based instructional program, etc.--is a separate decision, and the outline or plan serves as a solid basis for any of the possible delivery systems. Some competency-based programs avoid the term course entirely by organizing the content into "Competency Clusters," which reflect the new relationship.

Although individual teachers may have responsibility for designing the curricula for each of their own areas, the vocational administrator has a major role to play in providing

teachers with access to the necessary data bases and in ensuring that each individual curriculum is coordinated with the total school program, the other vocational programs, and other locally available training programs to form a cohesive whole.

This module is designed to provide you with the skills you need to direct the curriculum development process in such a way as to ensure a responsive, articulated vocational program geared to the employment needs of both its students and the community it serves.

Module Structure and Use

This module contains an introduction and three sequential learning experiences. Overviews, which precede each learning experience, contain the objectives for each experience and a brief description of what the learning experience involves.

Objectives

Terminal Objective: While working in an actual administrative situation, direct curriculum development. Your performance will be assessed by your resource person, using the "Administrator Performance Assessment Form," pp. 59-61. (Learning Experience III)

Enabling Objectives:

1. After completing the required reading, demonstrate knowledge of the bases for directing curriculum development. (Learning Experience I)
2. Given a case study describing how one administrator directed curriculum development, critique the performance of that administrator. (Learning Experience II)

Prerequisites

To complete this module, it is strongly recommended that you have competency in developing local plans for vocational education, including the gathering and analysis of relevant data and the development of vocational education goals. If you do not already have this competency, meet with your resource person to determine what method you will use to gain this skill. One option is to complete the information and practice activities in the following modules:

- Develop Local Plans for Vocational Education: Part I
- Develop Local Plans for Vocational Education: Part II

Resources

A list of the outside resources that supplement those contained within the module follows. Check with your resource person (1) to determine the availability and the location of these resources, (2) to locate additional references specific to

your situation, and (3) to get assistance in setting up activities with peers or observations of skilled administrators.

Learning Experience I

Required

- RESOURCES within your own state through which you can locate information concerning sources of occupational analyses.

Recommended

- AN ERIC SYSTEM depository that you can use to locate task analyses.

Optional

- REFERENCE: Finch, Curtis R., and Crunkilton, John R. Curriculum Development in Vocational and Technical Education: Planning, Content, and Implementation. Boston, MA: Allyn and Bacon, Inc., 1979.

Learning Experience II

Optional

- AN ADMINISTRATOR experienced in the direction of curriculum development whom you can interview.

Learning Experience III

Required

- AN ACTUAL ADMINISTRATIVE SITUATION in which, as part of your duties, you can direct curriculum development.
- A RESOURCE PERSON to assess your competency in directing curriculum development.

Selected Terms Administrator--refers to a member of the secondary or postsecondary administrative team. This generic term, except where otherwise specified, refers to the community college president, vice-president, dean, or director; or to the secondary school principal, director, or superintendent.

Board--refers to the secondary or postsecondary educational governing body. Except where otherwise specified, the term board is used to refer to a board of education and/or a board of trustees.

Institution--refers to a secondary or postsecondary educational agency. Except where otherwise specified, this generic term is used to refer synonymously to secondary schools, secondary vocational schools, area vocational schools, community colleges, postsecondary vocational and technical schools, and trade schools.

Resource Person--refers to the professional educator who is directly responsible for guiding and helping you plan and carry out your professional development program.

Teacher/Instructor--these terms are used interchangeably to refer to the person who is teaching or instructing students in a secondary or postsecondary educational institution.

User's Guide

For information that is common to all modules, such as procedures for module use, organization of modules, and definitions of terms, you should refer to the following supporting document:

> Guide to Using Competency-Based Vocational Education Administrator Materials. Columbus, OH: The Center for Vocational Education, The Ohio State University, 1977.

This module addresses task statement numbers 3, 4, 11, 13, 33, 39, 40, and 46 from Robert E. Norton et al., The Identification and National Verification of Competencies Important to Secondary and Post-Secondary Administrators of Vocational Education (Columbus, OH: The Center for Vocational Education, The Ohio State University, 1977). The 166 task statements in this document, which were verified as important, form the research base for the National Center's competency-based administrator module development.

Learning Experience I

OVERVIEW

After completing the required reading, demonstrate knowledge of the bases for directing curriculum development.

You will be reading the information sheet, "Directing Curriculum Development," pp. 9-39.

You may wish to read selected chapters in the supplementary reference, Finch and Crunkilton, Curriculum Development in Vocational and Technical Education: Planning, Content, and Implementation.

You will be demonstrating knowledge of the bases for directing curriculum development by completing the "Curriculum Worksheet," pp. 41-43.

You will be evaluating your competency by comparing your completed "Curriculum Worksheet" with the "Model Answers," pp. 45-47.

For information on the curriculum development process as a whole, the role of the administrator in this process, and the involvement of others in curriculum development, read the following information sheet.

DIRECTING CURRICULUM DEVELOPMENT

A new factory opens in your town. A more sophisticated type of office machine is purchased by a local firm. Human resource data forecasts the emergence of a new occupation. How do you, as an administrator, ensure that your vocational program remains responsive to these--often rapid--changes? You do this by coordinating the development of an up-to-date curriculum and then ensuring that the curriculum is reviewed, evaluated, and updated on a regular basis.

The curriculum is a guide. It outlines what will be taught in your vocational program, what skills will be covered in each occupational specialty, and what level of skill will be taught. The responsibility for the actual curriculum development generally rests with the teachers or department chairpersons. The role of the administrator, then, is to facilitate and guide this process and to ensure that the parts equal a unified whole.

Providing a Basis for Curriculum Development

Many factors need to be considered in developing a curriculum. First, you as an administrator must be aware of all relevant state and federal mandates, and have a clearly defined vocational philosophy and mission for your educational institution, and you need to make these public. It is up to you to explain this philosophy and these mandates to staff and ensure that the curriculum derives from this basis. If, for example, the institution's mission and philosophy include provisions for equal access and nondiscriminatory practices (which they must), then the curriculum should directly reflect such emphases.

Second, you must have available up-to-date information on job requirements (e.g., state requirements for licensing in professions such as nursing and cosmetology), and you are responsible for providing this data to the curriculum developers as relevant and necessary. Since the curriculum is intended to prepare students for employment or continued study in their area, then you must have current data on employment needs and trends, i.e., present employment figures, information on employment shortages or surpluses, future plans and prospects for industrial and commercial growth, anticipated technological changes, and the

like. These data are available through a variety of public and private organizations and agencies on the local, state, and national levels:

- State bureau of employment services, local office
- Local labor organizations
- State occupational information coordination committee (SOICC)
- National Occupational Information Coordination Committee (NOICC)
- Utility companies
- Growth plans of local and statewide industries
- Advisory committee members
- State department of commerce
- State department of economic development
- State and local business and trade associations
- Chambers of commerce
- State departments of vocational education
- Universities

In addition, you can gather a great deal of appropriate information yourself through existing community survey or follow-up study data or by arranging for such surveys to be conducted.[1] Such surveys can provide you with detailed current data concerning the on-the-job success of your program graduates as well as local employment requirements and opportunities. Data such as the following could be collected:

- Number of employees presently needed, by business or industry
- Projected number of new entrants needed
- Reasons for shortages of qualified candidates
- Starting and maximum wages

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1. For detailed information on conducting follow-up studies and community surveys, you may also wish to refer to four modules in the Professional Teacher Education Module Series produced by the National Center for Research in Vocational Education (Athens, GA: American Association for Vocational Instructional Materials, 1978): Modules A-1 to A-3 on preparing for, conducting, and reporting the findings of a community survey; and Module A-10 on conducting student follow-up studies.

- Working hours per week
- Union restrictions
- Requirements for employment (competencies, experience, physical requirements, education, training)
- Chances for advancement
- New and emerging related occupations
- Benefits and health plans

Realistic and up-to-date information on local conditions is also available through periodic contacts you make with community business leaders, either informally, through membership in business organizations, or through their membership on a well-balanced vocational advisory committee. As an administrator, you have a responsibility to develop and maintain such contacts so that you are aware of program impact and effectiveness on a continuous basis.

One final source of data is the students themselves. If you develop a new vocational program for an emerging occupation without verifying student interest--active or potential--in being trained for that occupation, you may not secure the enrollments necessary to support the program. Thus, data from student interest surveys must be obtained and shared with curriculum developers.

It is through analysis of all such data and inputs that you discover (1) how adequately your present vocational curriculum is preparing your students for employment, and (2) what training gaps exist. This information, then, becomes the basis for curriculum development or revision. For example, you may discover that a local firm feels that students graduating from your secretarial program do not possess what they consider to be entry-level skills, or that the firm is planning to purchase word processing equipment that your students are not trained to use. Further, it may be found that a particular occupational area for which you offer training is becoming obsolete, or that a new occupation is emerging for which training is unavailable. Having identified the probable need, you can plan appropriately for the development of new and revamped program offerings.

Need for Articulation in Curriculum Development

The one theme that will be emphasized repeatedly in this module is the need for articulation and your responsibility in ensuring this articulation, whether external or internal to the institution.

External articulation. Curriculum development must not be done in isolation, taking into account only those conditions, needs, and concerns of your own institution. The concept of external curricular articulation has to do with the way in which instructional programs in related schools and agencies are designed to foster efficient teaching and learning between each other. It makes possible the notion of a "career ladder," by which students can obtain beginning training in one program, and can advance in the occupation by completing additional training in a higher-level institution without loss of time or effort. In fact, the exit/graduation requirements of an institution should begin to correspond more closely with the entrance/admission requirements of the institution offering training suitable for the next higher rung of the career ladder.

Programs that are properly articulated will avoid duplication and will provide a range of training to meet the needs of the community. Curriculum planning that results in good curricular articulation requires the cooperative involvement of local secondary schools, postsecondary vo-tech centers, the community college, and proprietary institutions having programs in the same occupational area.

Internal articulation. Likewise, curriculum development is not simply a matter of one area of an institution identifying a need for a specific training program and then designing and implementing that program. Whether or not you decide to recommend the provision of such training, and the form that training will take, depends very much on a number of other considerations, such as internal articulation between the following:

- The vocational program and the philosophy and mission of the educational institution(s) served
- The vocational program and the total educational program
- The various occupational areas within the vocational program
- The vocational program and the local employers
- The vocational program and the needs and career goals of the student body it serves

Furthermore, additions to or modifications of the curriculum will also affect administrative aspects of the institution, and vice versa. These effects are especially noticeable when curricular changes alter admission or graduation requirements. The entrance requirements for a particular program should not be unreasonably more severe than the general admission requirements; the same is true for program exit criteria as compared to graduation requirements. A program that is noticeably longer or unnecessarily more rigorous than other programs within the same

institution can impose unfair extra costs on students and deter recruiting efforts. Conversely, "snap" courses or unrealistically short programs could undermine an institution's reputation for offering high-quality education. These issues must be among those fully and candidly discussed before a new program is implemented.

Consider the following example. Assume that you are a secondary school administrator whose human resource needs data suggest an acute need locally for well-trained paralegal personnel. A number of situations could exist that would make it inappropriate or unnecessary for you to install a program to meet this need. Perhaps, a local business--or a nearby postsecondary institution--has plans to offer the needed training. Maybe a survey indicates that, at least at present, there is no student interest in such employment. Or possibly, the institution's mission and philosophy require that available funds be directed to other, more important, or immediately critical areas.

Note that curriculum development does not always mean expansion. Upon investigation, for example, you may find that the watchmaking program in your institution is no longer fulfilling its original purposes, even though it has maintained its enrollment. Because of the shift in the industry to electronic timepieces and factory service, graduates of the program are no longer being hired by local jewelers. The class, instead, is made up of hobbyists with no occupational intent. Again, you must decide whether this fits the mission of your institution and is a wise use of resources--you may need to recommend termination of the program.

It is your job as an administrator to sketch out a total picture of these considerations and to make your findings available to those involved in the curriculum development process. A curriculum can, even without a plan, just grow. But, unless there is an overall purpose and cohesiveness to this growth, unless there is leadership in directing and overseeing the process, you risk producing unemployable students or suffering a loss of efficiency and cost-effectiveness due to overlapping efforts. It must be remembered that your role as an administrator is not one of doing all that is necessary but one of organizing, directing, managing, and monitoring to ensure that each step in the curriculum development process is properly carried out. An organized, systematic curriculum is crucial since it is on the basis of the established curriculum that decisions are made concerning selection of staff, layout of physical facilities, organizational structure of the institution, need for supplies and equipment, and all such important budgetary concerns. In other words, the ultimate success of the vocational program rests on the effectiveness of the curriculum on which it is built.

In this first section of the information sheet, curriculum development has been discussed, primarily, as if one is starting from ground zero. Such is rarely the case. It is, certainly, an exciting challenge to build a totally new curriculum for a new institution. However, the newly hired administrator usually must start, instead, from an existing curriculum. This may be a state-recommended or locally produced curriculum, and the quality and recency may vary. Your task remains the same nonetheless. You must gather (or plan and coordinate the gathering of) employment data, evaluate the quality of articulation that exists, and direct changes in the curriculum as needed.

Involving Staff

Assume, then, that you have completed the initial steps of gathering information, providing for program articulation, and making the necessary decisions about the need for the program. It has now been decided that a new training program is warranted and feasible. First, an administrative decision needs to be made concerning who is to have the responsibility for developing the curriculum for this training program. Depending on your situation and staffing patterns, this may be a curriculum developer, a district supervisor, a department head, or individual teachers. In your selection process, you should bear in mind the NIH principle: "Not Invented Here." Teachers and instructors will be the actual users of the curriculum; it is they who will make instructional decisions on its basis. The more direct involvement they have in the process, the greater the likelihood that they will actually follow the curriculum once it is developed.

On the other hand, consider teachers' schedules. Teachers with full instructional loads, part-time instructors, unionized teachers, etc., are sometimes reluctant to take on any additional responsibilities without some motivation or compensation. In any case, you must budget your funds and your staff time far enough ahead to provide the resources needed to do a thorough and proper job of curriculum development when you are ready for it. Thus, one of your administrative leadership functions must be to devise strategies to involve staff in curriculum development. These may include the following:

- Issuing an administrative fiat--In a day of cooperative management and emerging teachers' unions, this is not a highly acceptable strategy. Even when it does result in participation, however, it generally results in minimal compliance rather than maximum effort.

"Well, now that we've completely changed the curriculum, I suppose we should call in the teachers and tell them about it."

Noteworthy. 1(Fall 1979): 40.

- Providing released time--With tight budgets, this is not an easy task, but it is actually crucial to the development process. If you want a good job done, staff must be provided with the time to do it. And ideally, they should also be provided with the space to do it. Instructors working in their offices can lose the released time through interruptions related to regular instructional duties. A supervisor may find phone calls and brush fires eating up the allotted time. If you sincerely believe in the need for a solid curriculum, you, as an administrator, must be willing to arrange budget and schedule patterns such that staff have a real opportunity to produce the desired results.

- Providing intrinsic rewards--The success of this strategy will vary depending on what motivates your particular staff members. Thus, your first task is to be aware of individual staff members and what they consider to be rewards. An example of such a reward is increased status. Although no monetary reward is offered, some people are motivated by such things as (1) having an opportunity to contribute to the profession, (2) being designated as committee chairperson for a particular project, (3) gaining recognition as an educational "leader," and (4) having the opportunity to develop their own curriculum. Continual recognition and support of those making such efforts is essential.

- Providing extrinsic rewards--If the budget allows, persons developing curriculum could be compensated for the time spent or products developed. In some cases, such monies are available from the state department of education or research coordinating unit (RCU) in the form of grants or special project funds.

Steps in Curriculum Development

There are many curriculum development models--some seemingly quite complex--that provide structure for the development of a curriculum outline: a listing or profile of the skills, attitudes, and knowledge to be covered within a particular program, from which supplies, equipment, and instructional materials and techniques can be derived. In general, however, these models describe a simple, logical process involving five basic steps:

1. Providing an occupational analysis
2. Verifying the analysis
3. Analyzing the verified competencies (skills, tasks)
4. Translating the competencies into terminal performance objectives
5. Sequencing the terminal performance objectives

The remaining sections of this information sheet address each of these steps in detail.

Providing Occupational (Task) Analyses

Once your development team is organized, you need to assist them in obtaining the development tools they will need to structure their efforts. These tools are the occupational analyses. Basically, an occupational analysis is a listing of all the tasks (skill statements or competencies) that make up a particular job, and that are necessary for proficiency in a given occupation. Logically, if students are to be taught to be employable keypunch operators, for example, you first must identify what being a successful keypunch operator involves in terms of the competencies required.

As an administrator, you can assist curriculum developers in acquiring the necessary occupational analyses. First, you can provide them with direction in locating appropriate existing

occupational analyses. Your developers need to be aware of such potential sources as the following:

Resources in Vocational Education (RIVE). Produced by the ERIC Clearinghouse on Adult, Career, and Vocational Education at The Ohio State University in Columbus, Ohio, this is a bimonthly publication that provides indexes to, and summaries of, a variety of instructional and research materials, including recently developed occupational analyses.

State curriculum laboratories. Many states have one or more curriculum laboratories or instructional materials centers that are supported through state department of education funding and/or through membership subscription fees. Some states, such as Ohio, have separate labs for agricultural education, distributive education, and trade and industrial education, while other states have only one lab or center serving all vocational education service areas. Many of these curriculum labs and centers have developed and published occupational (task) analyses. The Ohio State University's Trade and Industrial Education Instructional Materials Laboratory, for example, has released analyses for over 100 occupational areas.

A number of states have developed a centralized approach to curriculum development (e.g., New York State's Instructional Support System for Occupational Education [ISSOE], and Kentucky's competency-based vocational education [CBVE] curriculum) that results in a standard, base, or core curriculum that is recommended for use by the institutions in that state. Before beginning a local curriculum development effort, it is advisable to check the status of existing state or regional efforts.

Regional and national consortiums. In recent years a number of regional and national consortiums have been organized and supported by various states and/or individual institutions to fund the development of occupational analyses and/or curriculum materials. Three such consortiums are as follows:

- Vocational-Technical Education Consortium of States (V-TECS)--V-TECS is a consortium of some 17 states (mostly in the Southeast) joined together to conduct occupational analyses and to publish them in the form of catalogs. An occupational catalog consists of the duty areas, task statements, learning guides, and criterion-referenced measures for each task. As of this writing there are over 70 catalogs that you may obtain (if your state is a member of V-TECS) from your state department of education. Nonmember states can purchase the catalogs from V-TECS; 795 Peach Tree Street, NE; Atlanta, GA 30308.

- Interstate Distributive Education Curriculum Consortium (IDECC)--IDECC is a consortium of states that started in 1972 to develop a competency-based learning system based on task analysis for 69 occupations in marketing and distribution. The consortium sponsored the development of 500 learning activity packages (LAPs), containing 983 competencies and over 2,000 behavioral objectives, and is continuing to develop more competencies based on occupational analyses for additional occupations. The IDECC office is located at The Ohio State University; 1166 Chesapeake Avenue; Columbus, OH 43212.

- Mid-America Vocational Curriculum Consortium (MAVCC)--This consortium of 11 states produces vocational instructional materials in a wide range of occupational areas. The format of the materials is uniform throughout and has been designed to satisfy the needs of all member states. Each curriculum manual has a teacher edition. The materials are available to member states (at special prices) and nonmember states from Mid-America Vocational Curriculum Consortium, Inc.; 1515 West Sixth Avenue; Stillwater, OK 74074.

Regional Curriculum Coordination Centers. Supported by the U.S. Office of Education are six regional curriculum coordination centers. These centers maintain libraries of curricular materials, including occupational analyses, and also have reference documents that might help locate occupational analyses available elsewhere. Inquiries should be sent to the center serving your state as follows:

EAST CENTRAL NETWORK CURRICULUM COORDINATION CENTER
Delaware, District of Columbia, Illinois, Indiana, Maryland, Michigan, Minnesota, Ohio, Pennsylvania, Virginia, West Virginia, Wisconsin

Illinois Office of Education
Division of Ad. Vocational and Technical Education (E 426)
100 North First Street
Springfield, IL 62777
(217) 782-0758

MIDWEST NETWORK CURRICULUM COORDINATION CENTER
Arkansas, Iowa, Kansas, Louisiana, Missouri, Nebraska, New Mexico, Oklahoma, Texas

State Department of Vocational and Technical Education
1515 West Sixth Avenue
Stillwater, OK 74074
(405) 377-2000, ext. 261

NORTHEAST NETWORK CURRICULUM COORDINATION CENTER
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Bureau of Occupational and Career Research Development
Division of Vocational Education
225 West State Street
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(609) 292-6562

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In addition, within your own individual state, certain occupational analyses may have been developed in a particular school district, university, professional and technical association, labor organization, potential employer, federal or state government bureau, manufacturer's association, business or commerce institution, research or consulting firm, etc.

As an administrator, it is up to you to identify all relevant sources, or to ensure that this is done by someone else on your administrative staff. This task can also be undertaken by the advisory committee. You also need to facilitate the acquisition of all relevant documents. In most cases, this will require that you have funds available to purchase the documents needed.

If, after identifying and tapping all existing sources, you determine that an occupational analysis does not exist for the area in question, then you must provide the means for an occupational analysis to be completed. You may be able to arrange to have this done by the state department of education staff, the vocational education staff at a local university, or you may arrange to share the development costs and responsibilities with other local educational agencies, or the burden may fall on you and your staff. If the latter is true, you will need to set aside needed funds for, and provide leadership to, the completion of the following first steps[2] in an occupational analysis:

1. Define the scope of the analysis.
2. Prepare an initial task listing.

The occupational analysis starts with a general description of the occupation to be analyzed--drawn perhaps from the Dictionary of Occupational Titles (DOT)--and ends with a list of the general areas of responsibility (duties or functions), each further broken down into the specific skills (tasks) required. A partial occupational analysis is shown in sample 1.

Another occupational analysis procedure you should be aware of is DACUM (Developing A Curriculum). Developed by the Experimental Projects Branch, Canada Department of Regional Economic Expansion, and the General Learning Corporation of New York, DACUM uses small-group brainstorming techniques during a three-day meeting of 8-12 occupational area experts to generate a skill profile for a particular job or occupational area (see sample 2). Compared to the usual occupational analysis process, DACUM has proven to be a far more cost-effective and expeditious method for developing an occupational analysis.

An organization called the DACUM Chart Exchange (DEX) is a clearinghouse for both information on DACUM and available DACUM charts for given occupations. By contacting DEX, you can get a listing of all available charts at no charge. Each chart you then wish to order costs a nominal fee (approximately $2.00). The address for DEX is DACUM Chart Exchange (DEX); Humber College, Lakeshore Campus; 3199 Lakeshore Boulevard West; Toronto, Ontario; Canada M8V 1K8. Note that while DACUM charts done at other institutions may be quite helpful to you, it is highly

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2. For detailed information concerning the steps involved in conducting such an analysis, you may wish to refer to Module A-7, Conduct an Occupational Analysis, part of the Professional Teacher Education Module Series produced by the National Center for Research in Vocational Education (Athens, GA: American Association for Vocational Instructional Materials, 1978).

SAMPLE 1

OCCUPATIONAL ANALYSIS
GENERAL SECRETARIES

Duty: Organizing and Planning Activities

Tasks: Assign specific work to individuals.
Compile periodic reports.
Compose copy at the typewriter.
Handle service calls on equipment.
Etc.

Duty: Personal Activities for Employer

Tasks: Acknowledge letters of congratulations.
Confer with employer on policy.
Keep list of credit card numbers.
Keep personal business diary for employer.
Etc.

Duty: Reception Activities

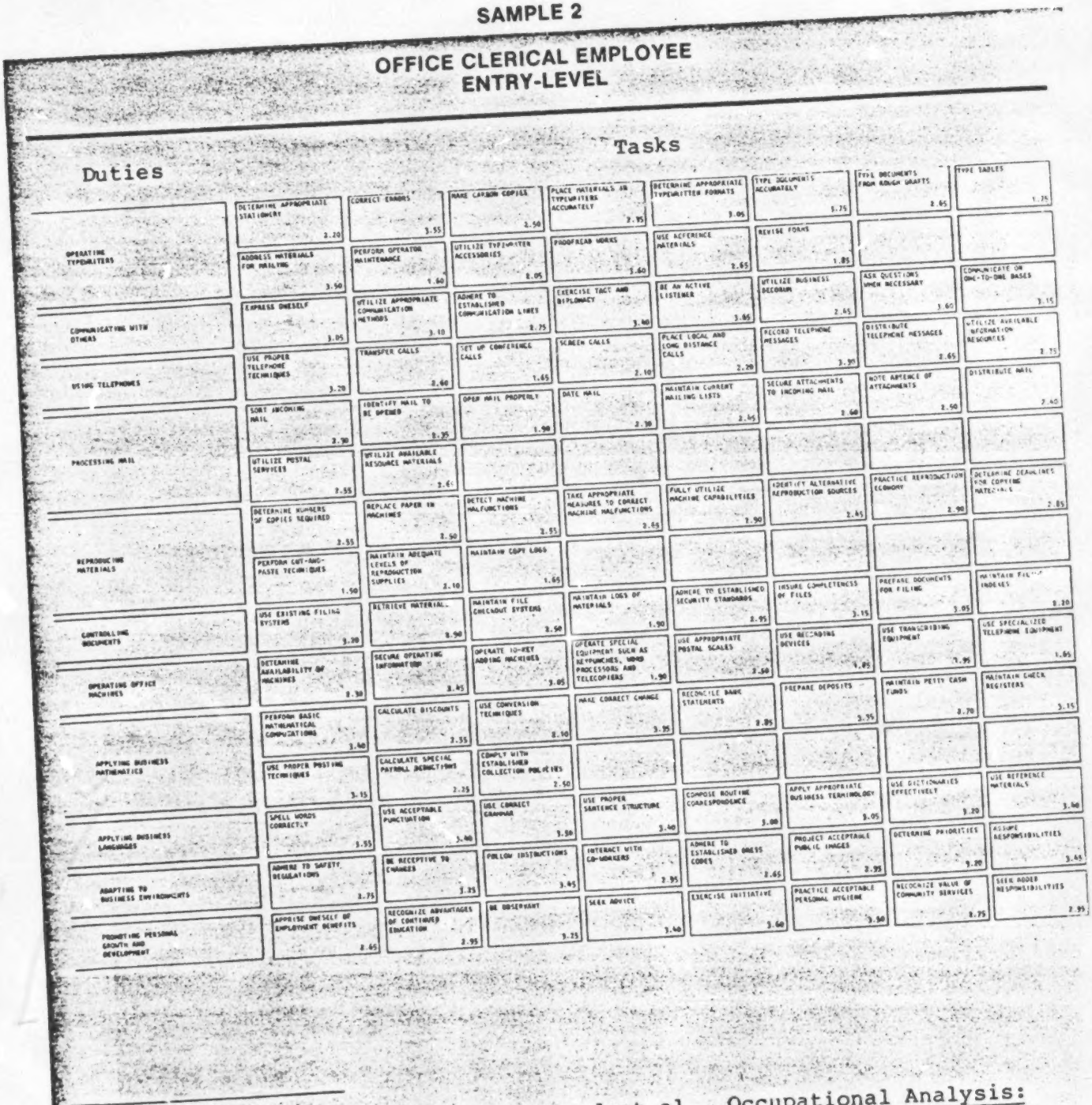
Tasks: Greet callers or visitors.
Maintain record of long distance calls.
Place telephone calls.
Screen employer's calls.
Etc.

Duty: Clerical Activities

Tasks: Assemble and staple duplicated materials.
Edit manuscripts.
Make corrections on original and carbon copies.
Type business letters.
Etc.

SOURCE: Adapted from Harry L. Ammerman and Duane W. Essex, Performance Content for Job Training, Volume 4: Deriving Performance Requirements for Training (Columbus, OH: The Center for Vocational Education, The Ohio State University, 1977), pp. 76-83.

SAMPLE 2


OFFICE CLERICAL EMPLOYEE
ENTRY-LEVEL
Duties
Tasks
OPERATING TYPEWRITERS
COMMUNICATING WITH OTHERS
USING TELEPHONES
PROCESSING MAIL
REPRODUCING MATERIALS
CONTROLLING DOCUMENTS
OPERATING OFFICE MACHINES
APPLYING BUSINESS MATHEMATICS
APPLYING BUSINESS LANGUAGES
ADAPTING TO BUSINESS ENVIRONMENTS
PROMOTING PERSONAL GROWTH AND DEVELOPMENT
DETERMINE APPROPRIATE STATIONERY 2.20
CORRECT ERRORS 3.55
MAKE CARBON COPIES 2.50
PLACE MATERIALS IN TYPEWRITERS ACCURATELY 2.95
DETERMINE APPROPRIATE TYPEWRITTEN FORMATS 3.05
TYPE DOCUMENTS ACCURATELY 3.75
TYPE DOCUMENTS FROM ROUGH DRAFTS 2.65
TYPE TABLES 1.75
ADDRESS MATERIALS FOR MAILING 3.50
PERFORM OPERATOR MAINTENANCE 1.60
UTILIZE TYPEWRITER ACCESSORIES 2.05
PROOFREAD WORKS 3.60
USE REFERENCE MATERIALS 2.65
REVISE FORMS 1.85
EXPRESS ONESELF 3.05
UTILIZE APPROPRIATE COMMUNICATION METHODS 3.10
ADHERE TO ESTABLISHED COMMUNICATION LINES 2.75
EXERCISE TACT AND DIPLOMACY 3.60
BE AN ACTIVE LISTENER 3.65
UTILIZE BUSINESS DECORUM 2.45
ASK QUESTIONS WHEN NECESSARY 3.60
COMMUNICATE ON ONE-TO-ONE BASES 3.15
USE PROPER TELEPHONE TECHNIQUES 3.20
TRANSFER CALLS 2.60
SET UP CONFERENCE CALLS 1.65
SCREEN CALLS 2.10
PLACE LOCAL AND LONG DISTANCE CALLS 2.20
RECORD TELEPHONE MESSAGES 3.35
DISTRIBUTE TELEPHONE MESSAGES 2.65
UTILIZE AVAILABLE INFORMATION RESOURCES 2.75
SORT INCOMING MAIL 2.30
IDENTIFY MAIL TO BE OPENED 3.35
OPEN MAIL PROPERLY 1.90
DATE MAIL 2.30
MAINTAIN CURRENT MAILING LISTS 2.45
SECURE ATTACHMENTS TO INCOMING MAIL 2.60
NOTE ABSENCE OF ATTACHMENTS 2.50
DISTRIBUTE MAIL 2.40
UTILIZE POSTAL SERVICES 2.55
UTILIZE AVAILABLE RESOURCE MATERIALS 2.65
DETERMINE NUMBERS OF COPIES REQUIRED 2.55
REPLACE PAPER IN MACHINES 2.50
DETECT MACHINE MALFUNCTIONS 2.55
TAKE APPROPRIATE MEASURES TO CORRECT MACHINE MALFUNCTIONS 2.65
FULLY UTILIZE MACHINE CAPABILITIES 2.90
IDENTIFY ALTERNATIVE REPRODUCTION SOURCES 2.45
PRACTICE REPRODUCTION ECONOMY 2.90
DETERMINE DEADLINES FOR COPYING MATERIALS 2.85
PERFORM CUT-AND-PASTE TECHNIQUES 1.50
MAINTAIN ADEQUATE LEVELS OF REPRODUCTION SUPPLIES 2.10
MAINTAIN COPY LOGS 1.65
USE EXISTING FILING SYSTEMS 3.20
RETRIEVE MATERIAL 3.50
MAINTAIN FILE CHECKOUT SYSTEMS 2.50
MAINTAIN LOGS OF MATERIALS 1.90
ADHERE TO ESTABLISHED SECURITY STANDARDS 2.95
INSURE COMPLETENESS OF FILES 3.15
PREPARE DOCUMENTS FOR FILING 3.05
MAINTAIN FILING INDEXES 2.20
DETERMINE AVAILABILITY OF MACHINES 2.30
SECURE OPERATING INFORMATION 3.45
OPERATE 10-KEY ADDING MACHINES 3.05
OPERATE SPECIAL EQUIPMENT SUCH AS KEYPUNCHES, WORD PROCESSORS AND TELECOPIERS 1.90
USE APPROPRIATE POSTAL SCALES 2.50
USE RECORDING DEVICES 1.95
USE TRANSCRIBING EQUIPMENT 1.95
USE SPECIALIZED TELEPHONE EQUIPMENT 1.85
PERFORM BASIC MATHEMATICAL COMPUTATIONS 3.40
CALCULATE DISCOUNTS 2.35
USE CONVERSION TECHNIQUES 2.10
MAKE CORRECT CHANGE 3.95
RECONCILE BANK STATEMENTS 2.85
PREPARE DEPOSITS 3.35
MAINTAIN PETTY CASH FUNDS 2.70
MAINTAIN CHECK REGISTERS 3.15
USE PROPER POSTING TECHNIQUES 3.15
CALCULATE SPECIAL PAYROLL DEDUCTIONS 2.25
COMPLY WITH ESTABLISHED COLLECTION POLICIES 2.50
SPELL WORDS CORRECTLY 3.55
USE ACCEPTABLE PUNCTUATION 3.40
USE CORRECT GRAMMAR 3.50
USE PROPER SENTENCE STRUCTURE 3.40
COMPOSE ROUTINE CORRESPONDENCE 3.00
APPLY APPROPRIATE BUSINESS TERMINOLOGY 3.05
USE DICTIONARIES EFFECTIVELY 3.20
USE REFERENCE MATERIALS 3.60
ADHERE TO SAFETY REGULATIONS 3.75
BE RECEPTIVE TO CHANGES 3.35
FOLLOW INSTRUCTIONS 3.45
INTERACT WITH CO-WORKERS 2.95
ADHERE TO ESTABLISHED DRESS CODES 2.65
PROJECT ACCEPTABLE PUBLIC IMAGES 2.95
DETERMINE PRIORITIES 3.20
ASSUME RESPONSIBILITIES 3.45
APPRISE ONESELF OF EMPLOYMENT BENEFITS 2.65
RECOGNIZE ADVANTAGES OF CONTINUED EDUCATION 2.95
BE OBSERVANT 3.25
SEEK ADVICE 3.40
EXERCISE INITIATIVE 3.60
PRACTICE ACCEPTABLE PERSONAL HYGIENE 3.50
RECOGNIZE VALUE OF COMMUNITY SERVICES 2.75
SEEK ADDED RESPONSIBILITIES 2.95

SOURCE: DACUM chart from Sandra Boland et al., Occupational Analysis: Office Clerical Employee Entry-Level (Fort Collins, CO: Colorado State University, Division of Vocational Education, Curriculum Materials Service, 1978), pp. 7-8.

Tasks

TYPE REPORTS AND MANUSCRIPTS 3.10	TYPE MINUTES OF MEETINGS 1.85	TYPE MEMORANDUMS 1.65	TYPE DOCUMENTS FROM AUDIO SOURCES 1.60	TYPE DRAFTS 0.75	TYPE LABELS 1.75	TYPE LETTERS 3.10	PLACE DATA ON FORMS CORRECTLY 3.25	DETECT OBVIOUS ERRORS IN TEXTS 3.35	TYPE STATISTICAL DATA 2.35
BE OPEN TO SUGGESTIONS 3.60	ACCEPT CONSTRUCTIVE CRITICISMS 3.40	CRITICIZE OTHERS IN A CONSTRUCTIVE MANNER 2.70	RELATE IN POSITIVE MANNERS 3.60	DETERMINE NEED FOR COMMUNICATIONS 2.80	DETERMINE PROPER LEVELS OF COMMUNICATIONS 2.70	MAINTAIN A SENSE OF HUMOR 2.80	COMMUNICATE ORALLY WITH OTHERS 3.15	ADHERE TO PROTOCOL 1.95	
MAINTAIN LISTINGS OF FREQUENTLY USED NUMBERS 2.60	PRACTICE TELEPHONE ECONOMY 2.60	LOG ALL TOLL CALLS 1.75	MONITOR HOLDING CALLS 2.55	MAINTAIN COMPOSURE UNDER PRESSURE 3.15	DETECT AND REPORT EQUIPMENT MALFUNCTIONS 2.60	UTILIZE INTERCOM SYSTEMS 2.00	GATHER DATA BEFORE PLACING CALLS 3.15	KNOW WHEREABOUTS OF PERSONNEL 2.45	LEAVE INFORMATIVE MESSAGES 2.85
PROCESS SPECIAL MAIL 2.50	MAINTAIN MAIL LOGS 1.50	CLASSIFY MAIL 1.60	DETERMINE PROPER POSTAGE 2.45	SECURE PROPER ATTACHMENTS TO OUTGOING MAIL 2.75	DETERMINE COMPLETENESS OF MATERIALS TO BE RELEASED 3.10	DISTRIBUTE CARBON COPIES 2.55	SORT OUTGOING MAIL 2.05	ADHERE TO MAILING DEADLINES 2.90	MAINTAIN ADEQUATE POSTAGE RESOURCES 2.20
ASSEMBLE MATERIALS 2.85	UTILIZE REPRODUCTION ACCESSORIES 2.35	DETERMINE DISTRIBUTION REQUIREMENTS 2.35	DISTRIBUTE COMPLETED COPIES 2.95	PROCESS SPECIAL DOCUMENTS 2.20	ACCOUNT FOR ALL ORIGINALS 2.55	RETURN ORIGINAL MATERIALS TO SOURCES 2.70	LEAVE COPYING AREAS IN ORDER 2.75	CHECK QUALITY OF COPIES 2.95	STORE MATERIALS FOR REUSE 2.25
CROSS-REFERENCE MATERIALS 2.05	ESTABLISH PROPER FILE SIZES 2.70	DETERMINE EQUIPMENT NEEDS 2.15	PURGE FILES 2.40	DISPOSE OF MATERIALS 2.35	ASSEMBLE FILES 2.70	CATEGORIZE MATERIALS 2.60	SORT MATERIALS 2.40		
USE AUDIOVISUAL EQUIPMENT 1.55	USE HOLE PUNCHES 2.10	PERFORM ROUTINE OPERATOR MAINTENANCE 2.40	OPERATE AUTOMATED ACCESSORIES SUCH AS ELECTRIC PENCIL SHARPENERS AND LETTER OPENERS 1.90	MAINTAIN INVENTORIES OF SUPPLIES 0.45	EXERCISE SAFETY PRECAUTIONS 2.70	DETECT MACHINE MALFUNCTIONS 2.55	TAKE APPROPRIATE MEASURES TO CORRECT MACHINE MALFUNCTIONS 2.30		
ISSUE RECEIPTS 1.30	POST FINANCIAL TRANSACTIONS 2.90	VERIFY COMPUTATIONS 3.25	PROCESS EXPENSE VOUCHERS 2.30	VERIFY RECEIVED MATERIALS 2.95	REPORT OBVIOUS DISCREPANCIES 3.50	CALCULATE INTEREST 2.35	MAINTAIN INVENTORY CONTROLS 2.55	MAINTAIN TIMEKEEPING RECORDS 2.25	USE TAX TABLES 2.75
PROOFREAD MATERIALS 3.50	COMMUNICATE WITH OTHERS THROUGH WRITTEN MEDIA 3.45	RESTRUCTURE COPIES WHEN NECESSARY 2.95	BE CONCISE 3.15						
PERFORM WORK UNDER PRESSURE 3.45	ADHERE TO OFFICE POLICIES 2.80	ADHERE TO OFFICE REGULATIONS 2.95	MAINTAIN ORDERLY WORK STATIONS 2.95	ASSIST IN KEEPING OFFICES NEAT 2.95	PERFORM WORK WITHIN ORGANIZATIONAL STRUCTURE 2.85	ORIENT ONESELF TO SURROUNDINGS 2.00	SEEK CLARIFICATIONS OF JOB ASSIGNMENTS 2.95	EXERCISE DISCRETION 3.00	
RECOGNIZE PERSONAL STRENGTHS 2.95	RECOGNIZE PERSONAL WEAKNESSES 3.20	SET REALISTIC GOALS 3.15	PROJECT POSITIVE ATTITUDES 3.40	TAKE PRIDE IN ONE'S WORK 3.25	ACCEPT RESPONSIBILITIES FOR OWN ACTIONS 3.30	EXERCISE SELF-CONTROL 3.45			

RATING SCALE

0--Irrelevant or not Important

1--Little Importance

2--Average Importance

3--Very Important

4--Critical Importance

desirable that each institution go through the process of verifying these charts locally or developing its own charts. This will ensure that local conditions and needs are met, and that the institution's instructional personnel will feel "ownership" of its own program.

In reading the DACUM chart shown in sample 2, notice that the general categories of competencies (duties) are given in the left-hand column. The specific competencies that are included in each category are listed in the horizontal rows extending from the right of the category title (labeled "tasks").

Some programs, in the name of saving time and money, have used individual instructors (or a small group of instructors) to identify the tasks to be taught in the program. Typically, this involves simply going through a collection of texts and courze outlines and selecting competencies on the basis of personal experience and preference. This approach, though widely practiced, has serious deficiencies that may significantly weaken the curriculum. The task list so identified may be incomplete, out of date, and reflect only the current interests and abilities of the instructor rather than the requirements of the occupation. This approach is hard to justify to either students, the profession, or prospective employers.

It is of critical importance in competency-based vocational training programs that you start with an accurate, complete, and verified competency listing or chart. Without this, no matter how well the rest of the curriculum is developed, or no matter how well the delivery of instruction is organized, the competency-based education (CBE) program is an exercise in futility. Students may be industriously achieving each specified competency in the program but, if they are the wrong competencies, students will not be properly prepared to enter the occupation.

Again, bear in mind that your level of direct responsibility in this process may vary depending on your specific administrative position. Nonetheless, even if you do not have direct responsibility, you need to be aware of the total process so that you can provide leadership to those whose direct responsibility it is. Requesting periodic committee meeting minutes or other such formal reports can help you monitor progress.

Assume now that you have either provided your curriculum developers with the appropriate occupational analyses or have assisted them in producing these analyses. This list is, at this point, tentative: (1) it may not represent the total set of skills considered to be essential by local employers, and (2) it certainly does not indicate which of those skills will be covered in your institution's curriculum. It needs to be pointed out that some institutions that produce their own DACUM analyses

consider the charts to be final, not tentative. The charts are used exactly as produced by the DACUM Committee and are not revised in any way, nor are the identified competencies subject to further verification. There are obvious risks inherent in using the DACUM results without any further review or input: the number of DACUM Committee experts is usually limited to not more than 12 persons and the public relations value of having other qualified workers and supervisors review the analyses is lost. Thus, some additional steps are recommended.

Verifying Occupational Analyses

Verifying the occupational analysis confirms that the items listed in fact describe the occupation and, specifically, the occupational situation locally into which students will be placed. To structure the verification process, certain decisions must be made: (1) who will conduct the verification, (2) who will participate in the actual verification, and (3) what questions will be asked. In all likelihood, during the decision-making stages, there should be major involvement of three parties: (1) you, the administrator, (2) staff responsible for conducting the verification (e.g., those designated as curriculum developers), and (3) advisory committee members.

A member of the administrative staff must be involved. As that administrator, it is your responsibility to set up initial meetings with verification staff and advisory committee members. You may also prepare the agenda and record the minutes. It is the administrator who must explain to the group what decisions must be made and what and how they can contribute. If you are not to be involved throughout, it is your responsibility to delegate authority to someone else--and then to monitor progress to ensure that that responsibility is being carried out. This last item is crucial.

Consider the administrator who decides that curriculum development is important; turns it over lock, stock, and barrel to staff with few directions and little initial guidance; and then forgets about it until the due date. Such an administrator will probably be disappointed with the results.

More often than not, the staff involved do not have the authority to make the necessary decisions, open the right doors, or secure the needed involvement and cooperation. Your administrative presence, even at a distance, is required throughout the development process. During the initial meetings, you need to help those involved to plan the verification within the constraints of budget and staff at your school. A "good" idea for which there are not adequate funds needs to be rethought, not squelched. Unless you are present, good ideas might be lost.

You are the one who knows the total picture and has the authority to make any necessary adjustments.

Staff who will conduct the verification should be involved. Again, if you want staff to believe in and use the results of curriculum development, you must help them understand its importance. Their being involved throughout the development process will help them to feel a part of this important procedure and greatly enhance articulation between academic and vocational program areas. Since they have been workers in their field, their inputs are critical.

Advisory committees must be involved. Through common sense and, now, legislative requirement, advisory committees have become a part of vocational education at both secondary and postsecondary levels. The advisory committee for a particular service area and the program advisory committee or craft committee are groups of citizens with expertise in the world of work who are appointed in order to provide vocational instructors with advice concerning preparation of students for employment. As such, they have a key contribution to make to curriculum development, especially to its articulation with other programs and activities. They can provide suggestions concerning what verification questions should be asked, what techniques would secure the most cooperation from employers asked to participate in verifying the analysis, and what employers should be involved. They can also participate themselves in the verification of the list. Clearly, if your occupational program has no advisory group, your first step is to appoint such a body.[3]

At the planning meetings involving these persons, the following decisions will need to be made, with input from all members of the group:

Who will conduct the verification process?

- A member of the administrative staff, such as an evaluation specialist
- A specially appointed and trained group of faculty
- A previously appointed staff, such as a team of curriculum developers
- Other personnel

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3. For information on forming and working with an advisory group, you may wish to refer to Module A-4, Organize an Occupational Advisory Committee; and Module A-5, Maintain an Occupational Advisory Committee, part of the Professional Teacher Education Module Series produced by the National Center for Research in Vocational Education (Athens, GA: American Association for Vocational Instructional Materials, 1978).

What questions will be asked?

- If you want only to verify the skills as real and relevant, you can ask incumbents simply to review each item on the analysis and check it if it is actually performed as part of that job.
- If you wish to gather other information relevant to sequencing and curriculum development, your verification instrument or interview could include other questions such as (1) Is the task performed by beginning workers? (2) How often is the task performed? (3) How important is the task? and (4) How difficult is it to learn to perform the task?

Who will be asked to verify the tasks?

- Employees (incumbent workers in an occupation)
- Employers locally who hire workers in this area
- Employers statewide
- Advisory committee members
- With an emerging occupation, a more diverse respondent group may be required

What key activities need to occur and what will be the schedule for their completion?

- Design of instrument or questionnaire, or of interview questions
- Pilot test of instrument with limited respondent group
- Contacting of respondents
- Deadlines for completion

You must ensure that whatever verification process is selected is feasible--and effective--within your budget. Once the decisions have been made, your role is that of facilitator--making sure any necessary forms are processed through your office quickly, being aware of the progress being made, and furthering that progress where possible. If some verification is to be done through interview/observation techniques, you can facilitate that process through such devices as providing the means for training the interviewers, or writing letters of introduction over your signature to help interviewers gain the cooperation of employers. At any rate, the point is that, even though verification will probably not be your direct responsibility, you will need to

understand the process, help with the decisions, and monitor progress if you want a good job to be done.[4]

Analyzing Verified Competencies

Each competency (skill, task) statement next needs to be analyzed--to be broken down into the knowledge, skills, and attitudes required to perform that competency. This step serves several very important purposes, one of which is to provide teachers with a more detailed basis for developing instructional plans. More importantly, however, it helps the curriculum developer(s) to identify the relative "size" of the competencies listed. No matter how carefully defined and structured the analysis process has been, competencies inevitably vary in size, i.e., in the amount of time and effort required to teach or to learn that skill. By analyzing each competency, one can identify and remedy these inconsistencies.

It is difficult to describe exactly how large a competency statement should be. It can be said that a competency should not be so small and trivial as to require little or no training ("count nuts and bolts for inventory"), or so large and global as to provide little guidance for instruction ("deal with the public"). In general, a competency statement should describe tasks that require specific instruction, and the instruction should be possible to complete within a reasonable period of time.

It is helpful to provide curriculum developers with a simple chart to use to structure the completion of this step (see sample 3). Using such a chart, one can analyze each competency to determine (1) the subtasks, steps, or activities involved, (2) the cognitive (knowledge) elements involved, and (3) affective (attitude) elements involved. Consideration of safety relative to all three areas is of key importance. Advisory committee members can be involved in this step, also.

Translating Competencies into Terminal Performance Objectives

On the basis of the competency analysis, curriculum developers next need to translate each competency statement into a

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4. For more detailed information on the verification process and design of instruments, you may wish to refer to Module A-7, Conduct an Occupational Analysis, part of the Professional Teacher Education Module Series produced by the National Center for Research in Vocational Education (Athens, GA: American Association for Vocational Instructional Materials, 1978).

SAMPLE 3

ANALYSIS OF VERIFIED COMPETENCY
GENERAL SECRETARIES

Competency--Produce business letters

In performing this competency, the secretary will need to do the following:

CONDUCT THESE ACTIVITIES	KNOW THE FOLLOWING	EXHIBIT THESE ATTITUDES
1. Select appropriate materials	Types of stationery Type styles Number and type of copies needed	
2. Use correct letter format	Business letter parts Business letter styles	
3. Check for correct punctuation and spelling	Punctuation and spelling rules	
4. Edit letter as needed	Editing procedures Grammar	Caring attitude
5. Type letter	Accurate and efficient operation of typewriters	Exhibit concern for quality of finished product
6. Make appropriate corrections	Correction materials Correction procedures	Appreciation for accuracy and neatness
7. Proof completed letter	Proofreading skills	Appreciation for accuracy and neatness

complete terminal performance objective. The competency statement describes only the performance required, e.g., "Type reports and manuscripts." The terminal performance objective adds to this statement of performance (1) a statement of the general conditions under which the performance will be done, and (2) a statement of the general criteria against which the performance will be measured. Thus, for example, the previous competency statement becomes the terminal performance objective, "In office settings, given drafts of reports and manuscripts to be typed, the learner will type reports and manuscripts in correct forms to produce mailable copies according to established office procedures."

Performance:	"the learner will type reports and manuscripts"
Condition:	"in office settings, given drafts of reports and manuscripts to be typed"
Criteria:	"in correct forms to produce mailable copies according to established office procedures"

The performance objectives described above are in the form advocated by Robert F. Mager and almost universally accepted by vocational educators. Some institutions implementing CBE programs, however, do not take the step of rewriting competencies as terminal objectives. The condition of performance is assumed throughout as being that of the occupational work place (not the training classroom), and the criteria are those applied to the beginning worker in that occupational area. Checklists in the instructional packages inform the trainee of the specific performance criteria that will be used to determine overall proficiency. Thus, rigorous training and evaluation standards are maintained, though in unique form.

Sequencing the Terminal Performance Objectives

At this point, you should have a list of task (skill or competency) statements for a given occupation, which have been verified as actually constituting that occupation. You also might have a terminal performance objective for each of the competencies that was verified. You do not necessarily, however, have a list of the occupational skills that will make up the new curriculum. At the end of this step--the sequencing of terminal performance objectives--you will have a list of the competencies and objectives to be taught in the program, arranged in a sequence supported by instructional logic, i.e., sequenced to promote effective student learning. This is called a curriculum plan or course outline and, from this, staff can determine appropriate instructional techniques to be used and the instructional materials needed.

The larger view is needed here. The question is not, "In what order should all of these be clustered and taught in our institution?" Instead, the question involves which of those skills will comprise the new curriculum. Articulation is a key concern here, and involvement of appropriate others is critical. The sequencing process is not difficult, but it is complex. The decision made at this point will directly affect major instructional decisions made later and, thus, it is absolutely essential that you, as the administrator, be on top of the situation at this point.

Perhaps, the easiest way to proceed is to give an example. Assume that you are the dean of occupational studies at a community college, and that the president of the local chapter of the Society of Manufacturing Engineers, Mr. Lowe, comes to you with what he perceives to be a very serious problem. Mr. Lowe indicates that area machine shops, generally, and several tool and die companies, in particular, are having great difficulty finding and employing sufficient numbers of qualified machinists, tool designers, tool and die makers, and others in related trades. Since Mr. Lowe is also vice-president of the Acme Tool Company, you assume he knows whereof he speaks. You meet with Mr. Lowe to discuss the problem in more detail, and then you arrange for the following steps to be taken:

1. A team of instructors from the industrial technologies department is appointed as a special task force to explore the problem, with released time provided for their activities.
2. The task force is provided with some readily available occupational analyses and with directions for locating others.
3. Meetings are held with advisory committee members, other local employers, and secondary school teachers to ascertain exactly what training is going on now.
4. All of the occupational analyses are merged and the final list is taken to local employers and employees for verification. During the verification interviews, other specified questions may be asked to determine the gap between what employers expect and what they are getting.

Armed with all this information and data, the verified skills can be formed into a curriculum. If it is determined that you should add a program area or revise an existing program to meet employment needs in this area, the skills (competencies) to be covered need to be selected and sequenced according to three areas: articulation, time, and learning theory.

Articulation. In terms of articulation, the curriculum plan or course outline needs to take into account available secondary preparation, available postsecondary training, available on-the-job training, and employer expectations for their employees. By working together with secondary personnel, advisory committee members, and local employers, an articulated training sequence can be planned, which utilizes the available resources of each group effectively and meets both the needs of students and of local employers.

Students graduating from the secondary program will be adequately trained for employment at a certain level or for further training at the community college. The community college program will make provision for the student lacking secondary training, but will also offer training that will follow logically from, and build upon, the secondary training offered locally. And graduates from the community college program will be adequately trained for employment at a certain level. Once on the job, the graduate of either program may require specialized on-the-job training in areas (1) in which only the employer has the required equipment, (2) in which the employer has trainers available, or (3) in which the employer's practices are unique to the organization.

To have three groups working together, each with its own self-interests, requires coordination if consensus is to be reached. If your institution initiates these meetings, an administrator should be present, at least initially, to demonstrate institutional commitment to the task, to coordinate the flow of activities, and to ensure that the atmosphere is one of cooperation toward a mutually beneficial goal.

Articulation within the institution is also an important factor. If the machinists course to be added involves communications skills, these may be best taught through existing English courses. If computation skills are involved, these could be handled by existing, or revised, math courses. Other related skills (e.g., personal development, human relations, safety, career information, certain technical skills) may already be taught in existing vocational courses. The new curriculum, then, would include all skills to be acquired by students in preparation for that occupation but, in addition, would designate those to be covered in existing courses and those to be covered by the new curriculum.

It follows then that the outcomes of these articulation efforts will be reflected in the occupational program's entry and exit requirements. The entry criteria should correspond to the level of education or training available to and usually reached by students coming from feeder schools, or by students entering a postsecondary institution from a secondary vocational school.

Likewise, program exit requirements should reflect the skill attainment that local employees expect from entry-level workers in that occupation. Similarly, this concept also applies to institution-wide admission and graduation requirements.

Time. The second area of concern is time. Ideally, time should be considered a variable, not a constant. The curriculum will, however, have to be based on the available (or allocated) time. Regardless of an employer's expectations, your institution cannot provide training beyond the designated constraints of time.

Competency-based training programs in postsecondary institution are moving strongly toward allowing students whatever time they need in order to achieve each specified competency at the required level. This provides opportunity for success to trainees with a great range of learning styles and native abilities. To make this possible, of course, administrative and instructional procedures may need to be revised.

Although these open-entry/open-exit and competency-based programs are affecting our views concerning the limits of time, at present most schools still have their students in a course for a predetermined amount of time, i.e., as many credit hours as required for a diploma or certificate. In such cases, what is taught cannot exceed predetermined limits. If, by affixing rough time estimates to each of the skills in terms of the time needed to acquire that skill, it is determined that the skills exceed the time available, either the curriculum or the time allocated for the program will have to be adjusted. If sufficient data were gathered during the verification process, you have the means to assist staff and advisory committee members in designing the curriculum according to the following principles:[5]

- Tasks selected should be at the entry or other appropriate level of the occupation.
- Selection should be limited to basic tasks that can be learned within a reasonable level of competency.
- Tasks should be kept within the scope of the equipment available (either in-place or obtainable through existing funds).

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5. Much of what follows on sequencing is taken from Byrl R. Shoemaker, An Instructional System Design for Vocational Education (Columbus, OH: The Ohio State University, Instructional Materials Laboratory, Division of Vocational Education, 1976), pp. 47-49.

- Tasks should be selected on the basis of their frequency of use on the job.
- Tasks should be selected that are basic to learning more advanced tasks.

Learning theory. The third factor that you need to be sure is addressed by curriculum developers and advisory committee members as they finalize the curriculum is learning theory. At this point, they have produced a list of skills to be taught and have indicated whose responsibility it is for offering training in each skill, but the list is still not sequenced in any particular order. Final sequencing can only occur later. In conventional programs, individual instructors will select specific content and organize it in a logical sequence. In competency-based programs, students will select the order in which to pursue competencies through individual conferences with the instructor, basing selection on such factors as the trainee's previous experience and present interest, and instructional efficiency. However, a general sequencing should be determined at this point. (This general sequencing is part of the final steps of the DACUM process also.)

Generally, sequencing depends directly on the nature and structure of the selected tasks and terminal performance objectives that will comprise the units of learning. In view of some of the principles of learning, it might be advisable to orient the sequence to students' developmental level rather than to the subject matter. A few of the learning principles that are related to sequencing are as follows:

1. Learning is most effective when built on something the student already knows.
2. Students learn step by step, but they must see how each step fits into the total structure.

If the sequential order is student-centered rather than subject-centered, the following principles may help to determine a good learning order:

1. Sequence the tasks and content for early need.

   There are times when students need to learn basic skills and knowledge before they can carry out the steps required to perform a selected task. For example, cooking success begins with exact measuring. "How to measure," therefore, must be one of the first items to be taught. This item could be considered a prerequisite needed for most cooking skills, or it could be listed as a step in learning to bake a cake. Another example is

the need to teach safety or emergency procedures, especially for potentially hazardous situations such as flying or working with machine tools.

2. Sequence the tasks based on the normal job sequence.

   For instruction that has to do with overhaul of equipment, it is necessary that certain tasks be performed in a definite order, such as disassembly, cleaning, inspecting, repair or replacement, assembly, and testing. The student must learn this order. Sometimes the most difficult task may be the very first one. In some jobs, the various tasks do not follow a regular order from simple ones to complex ones.

3. Sequence the tasks for frequency of use.

   Tasks that students perform frequently must be learned early in the training program. In a horticultural program, sterilizing the soil is a task that students must do repeatedly on their first and every successive job. This task should be learned early.

4. Sequence from simple to more complex.

   The completed curriculum should be so arranged that the more simple tasks precede the more complex ones. In an ideal situation, each task performed by the student should be a little more complex than the previous one. Usually it is not possible to get a uniform progression from simple to complex. The curriculum planner should use this progression to the extent possible, however.

5. Sequence the tasks so that each new task is built on something the student can already do.

   When new tasks are tied to tasks that the student can already do, they become more meaningful and become a springboard for further learning.

6. Sequence to provide exit points to suboccupations.

   In many vocational areas it is possible to organize the program to allow students to leave the program and get a job in the occupation without having to complete the total program. In an auto mechanics program, for example, the trainee may leave to earn a living as a brake specialist and not get training at this time in automatic transmission repair or tune-up work. Tasks in the program can be sequenced to make this feasible and efficient.

7. Sequence to initiate and maintain student interest.

   In secondary programs especially, student interest is an important consideration. Beginning tasks can be selected on their ability to create initial interest (e.g., in a graphics program, compose and print a simple personal card). Interest can be maintained by periodically presenting a task that is known to generate fresh enthusiasm (e.g., in photography, make enlargements). By judicious selection, this can be done without doing violence to the natural sequence of events.

The process of sequencing as described here involves two aspects of learning--how much should be included in a two-year secondary or postsecondary vocational program, and how can it best be arranged so that effective learning can take place? The advisory committee should be utilized to the fullest extent to help make these two aspects meaningful for the program. But your role as administrator is also crucial. You must believe in the importance of these activities and you must be able to convince staff of their importance. You must understand the process and be able to explain it to those you ask to use it. And, most importantly, you must be visible throughout the process, monitoring progress, willingly providing assistance as needed, and reviewing and approving the final curriculum outline. For an example of a partial curriculum outline showing the sequenced terminal performance objectives for an office clerical worker in the duty area of "operating typewriters," see sample 4. These tasks and their associated performance objectives were sequenced according to the importance of those tasks and/or the sequence in which they are normally performed on the job, as perceived by a panel of experts.

With a thoroughly and carefully developed curriculum plan or course outline, created with the support and involvement of appropriate staff and advisory committee members, you have a firm basis for subsequent activities involved in the supervision of instruction: assisting staff in preparing instructional objectives; selecting instructional strategies; and specifying content, time allocations, and needed tools, equipment, supplies, and facilities. In addition, you have a concrete structure on which to base your efforts to evaluate curriculum effectiveness.

SAMPLE 4

CURRICULUM OUTLINE

DUTY STATEMENT I

The learner will operate typewriters.

Performance Objectives

1. In office settings, given business correspondence to be typed, the learner will determine the appropriate stationery to be used according to established office procedures.

2. In office settings, given business materials that have been prepared, the learner will detect and specify, using proofreader's marks, typographical and/or textual errors on originals and/or carbon copies and correct the errors to produce mailable copies according to established office procedures.

3. In office settings, given business materials to be typed, the learner will assemble, disassemble, organize correctly, and type in mailable form a carbon pack according to established office procedures.

4. In office settings, given business materials to be typed, the learner will place materials in typewriters accurately according to established business procedures.

5. In office settings, given business materials to be typed, the learner will determine appropriate typewritten formats such as margins, centering, or styles according to established office procedures.

6. In office settings, given business materials to be typed, the learner will type accurately and at a speed of at least fifty words per minute (WPM) to produce mailable copies according to established office procedures.

SOURCE: Taken with slight adaptation from Sharon Bass et al., Performance Objectives: Office Clerical Employee Entry-Level (Fort Collins, CO: Colorado State University, Department of Vocational Education, Curriculum Materials Service, 1978), pp. 5-7.

7. In office settings, given business materials to be typed, the learner will type from scripts and rough drafts using proofreader/revision marks according to established business procedures.

8. In office settings, given tabular materials to be typed, the learner will type tables in correct forms to produce mailable copies according to established office procedures.

9. In office settings, given drafts of reports and manuscripts to be typed, the learner will type reports and manuscripts in correct forms to produce mailable copies according to established office procedures.

10. In office settings, given drafts of meeting minutes to be typed, the learner will type minutes of meetings in correct forms to produce mailable copies according to established office procedures.

11. In office settings, given drafts of memorandums to be typed, the learner will type memorandums in correct formats to produce mailable copies according to established office procedures.

12. In office settings, given audio materials to be transcribed, the learner will type materials from audio sources, such as telephone, a person's voice or audiotapes in usable formats according to established office procedures.

13. In office settings, given materials to be typed, the learner will type drafts in correct forms for supervisors' revisions and corrections according to established office procedures.

14. In office settings, given information to be typed on labels, the learner will type labels in usable formats according to established office procedures.

15. In office settings, given drafts of letters to be typed, the learner will type letters in correct formats to produce mailable copies according to established office procedures.

16. In office settings, given data to be recorded, the learner will correctly place and type data on forms to produce mailable copies according to established office procedures.

17. In office settings, given statistical data to be typed, the learner will type statistical data in correct forms to produce mailable copies according to established office procedures.

18. In office settings, given address information, the learner will type address materials for mailing in correct forms to produce mailable copies according to established office procedures.

19. In office settings, given manufacturers' manuals and cleaning materials, the learner will maintain and clean typewriters according to manufacturers' guidelines and established office procedures.

20. In office settings, given specific situations, the learner will correctly utilize available typewriter accessories according to manufacturers' guidelines and established office procedures.

21. In office settings, given specific situations requiring the use of reference materials and access to reference materials, the learner will use reference materials effectively to obtain additional information according to established business procedures.

22. In office settings, given forms requiring revisions and suggestions for such revisions, the learner will revise forms according to established office procedures.

If you are interested in learning more about curriculum development in vocational education, you may wish to read selected chapters in Finch and Crunkilton, Curriculum Development in Vocational and Technical Education: Planning, Content, and Implementation. This reference addresses the history and theory of curriculum development and has sections on planning the curriculum, establishing curriculum content, and implementing the curriculum.

The following worksheet is designed to test your comprehension of the material in the information sheet, "Directing Curriculum Development," pp. 9-39, and to help you to relate that information to guidelines and resources in your state. The first two items require short essay-type responses. The remaining items require that you complete certain activities and document your results in writing. Please respond fully, but briefly, and make sure you respond to all parts of each item.

CURRICULUM WORKSHEET

1. According to one source,[6] "Curriculum for vocational education starts with a job and ends with the student on the job." What does this mean, and how does this affect your direction of curriculum development?

2. Each institution is responsible for designing and delivering its own curriculum. At the same time, each is responsible for maintaining articulation with related programs in its geographic area. How do you resolve this apparent conflict of responsibilities?

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6. Shoemaker, p. 13.

3. What sources of occupational analyses are available to vocational educators in your state? Identify as many as possible, and list each source and how and where it can be obtained.

4. a. Is there an ERIC collection housed somewhere in your state?

b. If yes, where is it housed and what procedures must an administrator follow to acquire ERIC materials?

c. If possible, visit this facility, check RIVE for occupational analyses in a particular occupation, and locate and review those analyses.

5. a. Using as many sources as you could identify within your state, locate all the occupational analyses covering the skills needed by a word processor operator, or some other occupational program area of your choice.

   b. List each analysis found and the source through which you located it.

   c. Compare the occupational analyses you located, describe their similarities and differences, and explain what that means in terms of curriculum development.

Compare your written responses on the "Curriculum Worksheet" with the "Model Answers" given below. Your responses need not exactly duplicate the model responses; however, you should have covered the same major points.

MODEL ANSWERS

1. The goal of vocational education is, by legislative directive, to prepare youth for employment. It is only common sense, then, to structure training programs based directly on identified employment needs. According to Shoemaker, "the only reliable source of content for specific training in an occupation is in the experiences of masters of that occupation." In terms of curriculum development, this means that one starts by identifying and verifying the skills actually performed on the job in an occupation in which there is student interest and community need. The curriculum must develop from this occupational analysis base and, consequently, should adequately prepare students for employment. And, because curriculum development is a process, the base is continuously evaluated and updated to ensure relevancy to employment--and student--needs.

2. Being responsible for developing its own curriculum does not mean that the institution does this in isolation. Neither does articulation imply that programs in neighboring institutions must all be identical or that they forfeit their autonomy. What is important is that related and feeder programs provide for a smooth progression of learning for the potential students, and that there are as few omissions and duplications as possible.

   Students should be able to begin their occupational training in one institution (a secondary school, for example) and find it possible to continue advanced work in another. Upper-level institutions, on the other hand, should usually have some courses available that allow adult learners to begin their training within that institution. Proprietary schools and corporate training programs should plan their curricula to draw on others' students and provide unique services for their clientele.

   If education establishments in a community work together in curriculum development, it should be possible to construct a career ladder in many fields. In the field of Health Occupations, for example, this might mean that a young person is initially trained as a health aide in the local secondary

school, then progresses to dental assistant, dental therapist, and finally to professional dentist in a university program--each experience building on the other. To do this requires careful and valid identification of competencies for each program, and thorough instructional delivery. It also requires mutual trust and communication among the cooperating institutions. The program administrator will help to decide what parts of the total curriculum are legitimately within the scope of the institution, whether there is sufficient need and interest, and how to ensure that the institution's program is coherent in itself, and supportive of others.

3. You should have checked at the local, state, and university levels if possible, and these contacts should have yielded a wide variety of sources of occupational analyses. For example, you might have found that your state is a member of V-TECS or IDECC. Or, your state may have arranged for statewide analyses to be developed. You may wish to review the listing on pp. 17-19 for additional sources available, perhaps, outside your state.

4. a. Every state has access to the ERIC collection in at least one location.

   b. By checking with your resource person or state department personnel, you probably found that the collection is located in the state department library facilities or at one of the state's universities or colleges.

   c. You should have been able to do the following: locate the RIVE documents; use them to locate existing occupational analyses; locate those analyses in the ERIC system; and use a microfiche reader to review those analyses.

5. a. You should have attempted to use all of the following sources, depending on their availability in your state:

   - Resources in Vocational Education (RIVE)
   - Instructional Materials Laboratory occupational analyses developed at The Ohio State University
   - Vocational-Technical Education Consortium of States (V-TECS) catalogs
   - Interstate Distributive Education Curriculum Consortium (IDECC)
   - State department of education, division of vocational education

- University/college vocational education departments
- Professional associations related to business office education
- Employers with word processing equipment
- Employment bureaus
- Manufacturers of word processing equipment
- Vocational schools and private and public postsecondary institutions

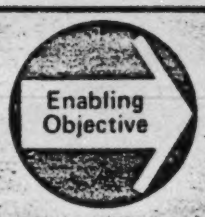
b. You should have been able to locate and list relevant analyses through several of the suggested sources.

c. The tasks on the various lists should have been similar since they describe the same occupation. However, you probably found that the level of detail varied among analyses, some providing only major duties performed, and some providing a detailed breakdown of all skills, knowledge, and attitudes required. In addition, certain tasks found on one list may be missing from other lists. In terms of curriculum development, these variations confirm the necessity for verifying the occupational analyses locally.

Level of Performance: Your completed "Curriculum Worksheet" should have covered the same major points as the model responses, and you should have been able to complete each activity as specified in the model responses. If you missed some points, were unable to complete certain items, or have questions about any additional points you made, review the material in the information sheet, "Directing Curriculum Development, pp. 9-39, or check with your resource person.

Learning Experience II

OVERVIEW



Given a case study describing how one administrator directed curriculum development, critique the performance of that administrator.

You will be reading the "Case Study," pp. 51-52, and critiquing the performance of the administrator described.

You will be evaluating your competency in critiquing the administrator's performance in directing curriculum development by comparing your completed critique with the "Model Critique," pp. 53-54.

You may wish to interview an experienced administrator about his/her experiences in directing staff in producing a curriculum.

The following "Case Study" describes how one administrator, Mr. Miller, handled the task of directing curriculum development. Read the case study and critique in writing the performance of the administrator described: what he did right; what he did wrong; what he should have done instead.

CASE STUDY

Mr. Miller, a vocational administrator, had just returned from attending a series of conferences on competency-based education, and he was excited about the concept since it fit well with the institution's philosophy of individualization. After a number of meetings with the other administrative staff, it was decided that one department, Computer Science, should initiate work on developing a curriculum outline(s) that could then serve as a basis for either (1) a traditionally taught course that would be more responsive to employment needs, or (2) a competency-based course, and also (3) development of instructional materials to cover the skills identified. Mr. Miller was placed in charge of directing the curriculum development efforts.

Mr. Miller first called a friend at the state department and asked her to send him any materials she could find related to Computer Science. Then he met with the institution's curriculum coordinator, Ms. Cox, who would be charged with direct responsibility for working with staff on the development of a curriculum outline(s). He explained to Ms. Cox all about competency-based education and how it related to the institution's mission and philosophy. He reminded her of the occupations for which the computer science program was designed to train students. Then he indicated that it would be up to Ms. Cox to meet with the computer science staff and direct their activities in producing a curriculum outline(s). When Mr. Miller got the package of materials from the state department, he turned it over to Ms. Cox.

Ms. Cox was new at her job and quite enthusiastic. She therefore made detailed plans and started initiating action. She sorted through the state department materials and found two existing occupational analyses and a verification instrument. She then called a meeting with the computer science staff for after school, introduced herself, and carefully explained what Mr. Miller wanted done. Using handouts of the relevant state department materials and overhead transparencies, she described in detail how to develop an occupational analysis, verify the tasks, and sequence the resulting terminal performance objectives. She finished by asking if there were any questions, but there weren't, so she adjourned the meeting.

After Ms. Cox left the room, there was a moment of silence before one of the teachers burst out laughing. "Exactly when does she think we're going to do all this? After school? It can't be during school because we don't share a common planning period." Another teacher, however, felt they should contribute something, so they took the two existing occupational analyses, checked them carefully, deleted some items, added other items, and arrived at a single task list they could agree on. Verification and development of terminal performance objectives was out of the question. They didn't have the time and their budget was too small to support a lot of extra duplication and postage.

When Ms. Cox checked with them periodically, they gave vague replies. Finally, the due date arrived and they handed her the unverified list they'd compiled. She, in turn, gave it to Mr. Miller, explaining that the staff was uncooperative. Mr. Miller didn't agree. He knew he had a good teaching staff. He was, however, very disappointed with Ms. Cox. After all, he had trusted her.

Compare your completed written critique of the "Case Study" with the "Model Critique" given below. Your responses need not exactly duplicate the model response; however, you should have covered the same major points.

MODEL CRITIQUE

The best that can be said for Mr. Miller is that he was accurate in his perceptions that competency-based education can help to achieve a goal of individualized instruction, and correct in initiating the development of curriculum outlines that could serve as a firm basis for the present program offerings or for the development of a competency-based program. Mostly, however, he erred. His trust in Ms. Cox was not misplaced; it just lacked his own very crucial support.

First, Mr. Miller did not seem to understand the total development process and all it involved. This makes it very difficult to adequately monitor progress. One needs first to know what one is looking for. In addition, by failing to think through the total process, he failed to give Ms. Cox the kinds of support she needed such as faculty incentives (e.g., released time or a common planning period), funding for duplication and postage, etc.

Second, he failed to recognize that, even with incentives, Ms. Cox, as a new staff member, would undoubtedly have difficulty persuading veteran staff to take on extra duties. He should have called the initial meeting and lent his experience and authority to the request. He should have made it his own responsibility to convince staff of the value of the task and of the need for their participation. Clearly, since the request came secondhand and since Mr. Miller was invisible throughout the process, staff felt under no particular pressure to deliver. There were no rewards for participating; neither were there any penalties--intrinsic or extrinsic--for not participating. If you delegate responsibility, you need to also delegate authority--or be readily available to provide that authority yourself.

By acquiring the state department materials for Ms. Cox, he might have led Ms. Cox to believe that those materials were adequate, yet the state department is only one of many possible sources that should have been checked. In addition, asking for "any materials related to computer science," is not very definite. He's very lucky--or Ms. Cox is--that there was some useful material included. Mr. Miller should either have checked

additional sources himself or charged Ms. Cox with specific responsibility for doing so.

One of the most critical voids in the process is in the area of articulation/involvement. Mr. Miller, as vocational administrator, should have ensured that the advisory committee was actively involved at various points throughout the process. Their experience and familiarity with the community could have been of enormous help and, perhaps, might have helped motivate staff participation. Mr. Miller also should have made certain that some interaction occurred between the computer science teachers and relevant others: personnel at schools offering similar training locally; other employers and employees in the area of computer science; other staff at the school such as those offering support services, related instruction, or core subjects such as English.

In a very real sense, it is fortunate that staff did not take the request seriously. Had they tried to complete the task, they would have encountered frustrating circumstances all along the way, since Mr. Miller really hadn't provided them with the needed direction, support, or motivation. At least now, he and Ms. Cox can try again, with better laid plans, without really asking staff to duplicate their efforts.

Level of Performance: Your completed written critique should have covered the same major points as the "Model Critique." If you missed some points or have questions about any additional points you made, review the material in the information sheet, "Directing Curriculum Development," pp. 9-39, or check with your resource person if necessary.

You may wish to arrange through your resource person to meet with an experienced administrator. You may interview this administrator and gather detailed information about his/her experiences in directing staff in producing a curriculum, including problems encountered and solutions reached. You could structure the interview around such questions as the following:

- How do you define curriculum development? What steps are involved? What is the ultimate product?
- What is your role, direct and indirect, in the process?
- What techniques and incentives do you use to involve staff?
- Who else do you involve in the process? Why? How?
- What sources do you use to locate occupational analyses?
- How much staff time is required for the verification, analysis, and sequencing of tasks and terminal performance objectives?
- What problems have you encountered in directing curriculum development and how did you solve them?

55

Learning Experience III

FINAL EXPERIENCE

While working in an actual administrative situation, direct curriculum development.*

As part of your administrative duties, direct curriculum development. This will include--

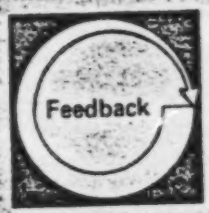
- involving appropriate persons
- explaining the procedures to be followed
- identifying existing occupational analyses or sources of occupational analyses
- monitoring the verification of tasks (competencies), the analysis of the verified competencies, and the development and sequencing of terminal performance objectives.
- facilitating staff efforts
- approving the final curriculum plan or course outline developed

NOTE: As you complete each of the above activities, document your activities (in writing, on tape, through a log) for assessment purposes.

continued

*If you are not currently working in an actual administrative situation, this learning experience may be deferred, with the approval of your resource person, until you have access to an actual administrative situation.

FINAL EXPERIENCE continued



Arrange to have your resource person review the curriculum plan or course outline and any other documentation produced. If possible, arrange to have your resource person observe your performance at a point when you are directly involved in the process (e.g., conducting a meeting between secondary and postsecondary personnel).

Your total competency will be assessed by your resource person, using the "Administrator Performance Assessment Form," pp. 59-61.

Based upon the criteria specified in this assessment instrument, your resource person will determine whether you are competent in directing curriculum development.

Name _____

Date _____

ADMINISTRATOR PERFORMANCE ASSESSMENT FORM

Direct Curriculum Development

Directions: Indicate the level of the administrator's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
	N/A	None	Poor	Fair	Good	Excellent
In initiating the curriculum development process, the administrator:						
1. selected appropriate staff for participation.....	☐	☐	☐	☐	☐	☐
2. motivated staff to participate....	☐	☐	☐	☐	☐	☐
3. explained the curriculum development process.....	☐	☐	☐	☐	☐	☐
4. provided staff with the resources required (e.g., time, space, funds).....	☐	☐	☐	☐	☐	☐
5. explained to staff the importance of involving others.....	☐	☐	☐	☐	☐	☐
In facilitating the curriculum development process, the administrator:						
6. monitored the entire process.....	☐	☐	☐	☐	☐	☐
7. provided direct leadership and assistance as required.....	☐	☐	☐	☐	☐	☐

		LEVEL OF PERFORMANCE					
		N/A	None	Poor	Fair	Good	Excellent
8.	ensured adequate leadership during times when he/she was not directly involved.....	☐	☐	☐	☐	☐	☐
9.	ensured adequate articulation through involvement of the following groups:						
	a. advisory committee.....	☐	☐	☐	☐	☐	☐
	b. other local trainers.....	☐	☐	☐	☐	☐	☐
	c. staff at other educational levels (secondary and post-secondary).....	☐	☐	☐	☐	☐	☐
	d. other staff within the school.	☐	☐	☐	☐	☐	☐
10.	assisted staff in locating existing occupational analyses and occupational data.....	☐	☐	☐	☐	☐	☐
11.	confirmed the adequacy of the verification process and results..	☐	☐	☐	☐	☐	☐
12.	facilitated the verification process as needed.....	☐	☐	☐	☐	☐	☐
13.	confirmed the adequacy of the competency analysis process.....	☐	☐	☐	☐	☐	☐
14.	facilitated the competency analysis process as needed.....	☐	☐	☐	☐	☐	☐
15.	confirmed the adequacy of the specification of terminal performance objectives.....	☐	☐	☐	☐	☐	☐
16.	facilitated the process of specifying terminal performance objectives.....	☐	☐	☐	☐	☐	☐
17.	confirmed the adequacy of the sequencing process and results....	☐	☐	☐	☐	☐	☐

	LEVEL OF PERFORMANCE					
	N/A	None	Poor	Fair	Good	Excellent
18. facilitated the sequencing process as needed.....	☐	☐	☐	☐	☐	☐
19. reviewed and approved the final curriculum plan or course outline.	☐	☐	☐	☐	☐	☐
<u>The final curriculum plan or course outline gives evidence of adequate leadership because the skills included</u>:						
20. are drawn from the list of skills on the verified occupational analysis.....	☐	☐	☐	☐	☐	☐
21. reflect employer needs as indicated in the general verification data.....	☐	☐	☐	☐	☐	☐
22. are consistent with the overall mission and goals of the school...	☐	☐	☐	☐	☐	☐
23. are articulated with other locally available vocational education programs.....	☐	☐	☐	☐	☐	☐
24. are realistic in terms of available staff, time, equipment, supplies, funding, etc.....	☐	☐	☐	☐	☐	☐
25. are sequenced according to learning theory and instructional logic.....	☐	☐	☐	☐	☐	☐

<u>Level of Performance</u>: All items must receive N/A, GOOD, or <u>EXCELLENT</u> responses. If any item receives a NONE, POOR, or FAIR response, the administrator and resource person should meet to determine what additional activities the administrator needs to complete in order to reach competency in the weak area(s).

ADDITIONAL RECOMMENDED REFERENCES

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Winters, Marilyn. Preparing Your Curriculum Guide. Alexandria, VA: Association for Supervision and Curriculum Development, 1980.

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